BOURLETIELLA (BOURLETIELLA) GIBBONSI, A NEW SPECIES FROM SOUTH CAROLINA (COLLEMBOLA: SMINTHURIDAE)[1,2]

Richard J. Snider[3,4]

ABSTRACT: A new species, *Bourletiella (Bourletiella) gibbonsi* Snider, is described from South Carolina. This species is closely allied to *Bourletiella (Bourletiella) rustica* Maynard, but can be separated on the basis of color pattern, presence of an outer tooth on the unguis and subapical needle on the unguiculus. The type locality is the Savannah River Plant, U.S. Department of Energy, Aiken, South Carolina. The collection was made in short grass on a bright, hot day.

During a visit to the University of Georgia's Savannah River Ecology Laboratory, near Aiken, South Carolina, I had the opportunity to make collections of Collembola. In particular, several species of sminthurids were taken by using a white enamel pan for sweeping grass and an aspirator for collecting. In a later paper the new additions to the faunal list for South Carolina will be presented. The purpose of the present report is to describe a previously unnamed species.

Bourletiella (Bourletiella) gibbonsi n. sp.

Color Description

Antenna purple, first segment uniformly dark, segments II and III darker distally, segment IV dark throughout. Head with light and dark purple mosaics forming two bands originating behind head, extending through eyepatches and converging between antennae forming a "V", a yellow-orange mosaic pattern above the intersection of the "V"; another band formed midway between eyepatches and mouthparts, with three dark mosaics creating a broken line of dots on frons; the three mosaics and base of "V" pattern above, constitute a triangular pattern; lower frons with light purple dusting. Thorax with paramedial lines broken. Abdomen with paramedial and lateral lines converging on dorsum of segment V; segment VI with dorsal maculae; bothriotrichium D surrounded with purple; parafurcular lobe with inverted crescent-shaped macula. Leg beyond trochanter with light dusting of purple, darkest distally on each segment. Bases of dentes purple. Body cream colored, becoming light yellow dorsally. Male color pattern same as female, except ground color more intense yellow (fig. 1 and 2).

---

[1]Received February 9, 1981.

[2]Publication support was provided by the Savannah River Ecology Laboratory of the University of Georgia at Aiken, South Carolina.

[3]Institute of Ecology, University of Georgia, Athens, GA 30602.

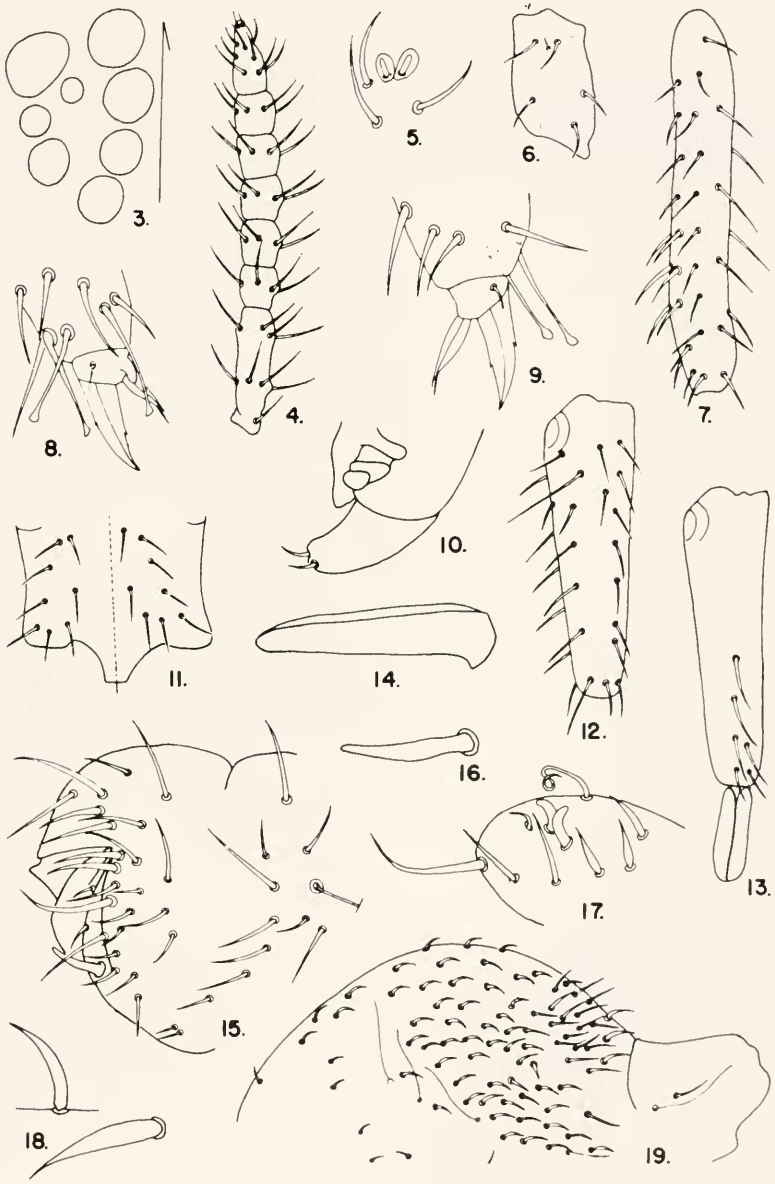
[4]Mailing address: Department of Zoology, Michigan State University, East Lansing, Michigan 48824.

Bourletiella (Bourletiella) gibbonsi n. sp. Fig. 1. Dorsal view, habitus,Fig. 2. Lateral view, habitus.

Morphological Description

Eyes 8 + 8 on dark patches; ocellus C two thirds diameter of H,D smaller than H (fig. 3). Antennal segment ration 1:2:3:6;ANT IV with five intermediates, apical bulb present (fig. 4); ANT III without spine-like setae, sense organ with two blunt setae lying in shallow depressions (fig. 5). Thoracic segmentation indistinct. Metatrochanter with oval organs; setal pattern typical, five anterior and one posterior (fig. 6). Metafemur with posterior setula. Distal half of tibia with strong inner setae (fig. 7); tibiotarsus of pro- and mesolegs with three heavy, appressed, clavate tenent hairs (fig. 8); metatibiotarsus with two tenent hairs. Pretarsus with anterior setula; unguis curving sublanceolate with basal outer tooth and weak inner tooth one-half to three-quarters distant from base; unguiculus tapering, without corner tooth, with short subapical needle less than one quarter of its length (fig 9). Sacs of ventral tube warty. Rami of tenaculum tridentate; anterior corpus with two setae (fig. 10). Manubrium with 16 dorsal setae (fig. 11). Dental setae Ve_3 longer than interval between Ve_3 and Ve_2 (fig. 13), seven internal lateral setae (fig. 12). Mucro spoon-shaped, with rachis fused to lateral lamellae (fig. 14). Female anal papilla with a few heavy circumanal setae (fig. 15), subanal appendage setiform in lateral and truncate in ventral view (fig. 16). Male anal papilla with dorsal crest; anterior spines setiform, slightly curving, anterior lateral spine curved forward and posterior spine curved backward; tendril present (fig. 17). Body setae of female short, curving, longer on posterior; male with short heavy, curving setae (fig. 18) on posterior half, a patch of longer, normal setae anterior of ABD V (fig. 19). Bothriotrichia in a oblique straight line, typical for genus. Length: males 0.5 — 0.6 mm and females 0.8 — 0.9 mm.

Bourletiella (Bourletiella) gibbonsi n. sp. Fig. 3 Ocellar pattern, holotype, Fig. 4. Antenna, Fig. 5. Antennal segment III, sense organ, Fig. 6. Anterior view of metatrochanter, Fig. 7. Anterior view of metatibia, Fig. 8. Claw of proleg, posterior surface, Fig. 9. Claw of metaleg, anterior surface. Fig. 10. Retinaculum, allotype, Fig. 11. Dorsal surface of manubrium, Fig. 12. Dens, ventral view, Fig. 13, Dens, dorsal view, Fig. 14. Lateral view of mucro, allotype Fig. 15. Female and papilla, allotype, Fig. 16. Female subanal appendage, ventral view, Fig. 17. Male dorsal crest, holotype, Fig. 18. Dorsal abdominal setae of male, Fig. 19. Abdomen of male.


3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.

Diagnosis

Bourletiella gibbonsi keys out to *Bourletiella rustica* Maynard in Stach (1956); his description is based upon the original by Maynard (1951). In Christiansen and Bellinger (1980-81), it also keys to *rustica*. When a comparison is made of the original description and illustrations (1951, figs. 373, 568-574), separation of the species is as follows:

rustica	*gibbonsi*
Pigment brown and tan lateral lines broad, irregular	Pigment dark purple, lateral lines narrow, regular
unguis without outer tooth	unguis with outer tooth
unguiculus without subapical needle	unguiculus with needle
tendril of male subequal to anterior spines	tendril almost twice length of anterior spines
female subanal appendage blade-like (ventral view)	subanal appendage thick, blunt (ventral view)

The two species are similar in pigment pattern of head and anal papilla. Both have antennal segmentation in ratio of 1:2:3:6 and ANT IV with five intermediates. The general shape of the female subanal appendage is the same, *gibbonsi* is slightly thicker. The female circumanal setae form a similar pattern in both species. The male dorsal crest of *gibbonsi* more closely resembles that of *Bourletiella hortensis* (Fitch). However, the number of tenacular setae is two for *hortensis* and three for *gibbonsi*. In addition, color pattern should separate the two species.

Types

Holotype (male), allotype (female), two male and one female paratype on slides; 94 paratypes in alcohol. Holotype, allotype and 84 paratypes deposited in the Entomology Museum, Michigan State University; 10 paratypes deposited in the Entomology Museum, the University of Georgia at Athens. All specimens were collected in South Carolina, Barnwell County, Savannah River Plant, U.S. Department of Energy, near Aiken, on roadside grass, August 25, 1980, R.J. Snider, collector.

Remarks

This species was collected on a bright, hot (31 C) day. The habitat was mowed grass growing on the side of paved road within the Savannah River Plant boundaries. The grass was approximately 150 centimeters high and grown in full sunlight. The number of males and females was about equal. It is my pleasure to name this colorful species for my long-time friend, Dr. J. Whitfield Gibbons. Associate Director of the Savannah River Ecology Laboratory of the University of Georgia.

ACKNOWLEDGEMENTS

Special thanks are offered to the Department of Entomology, University of Georgia and Dr. D.A. Crossley, Jr. for the use of facilities and aid in manuscript preparation. Field collecting was carried out under the auspices of Contract DE-AC09-76SR00819 between the U.S. Department of Energy and the University of Georgia.

LITERATURE CITED

Chrisitansen, K. and P.F. Bellinger, 1980-81. The Collembola of North America North of the Rio grande, Grinnell College, Grinnell, Iowa, 1322 p.

Maynard, E.A. 1951. A Monograph of the Collembola or Springtail Insects of New York State. Comstock Publ. Co., Ithaca, N.Y. 339. p.

Stach, J. 1956. The Apterygoten Fauna of Poland in Relation to the World-Fauna of this Group of Insects. Family: Sminthuridae. Pol. Akad. Nauk, Krakow, 289 p.